

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0054569

Owner: City of Unionville
Address: P.O. Box 255, Unionville, MO 63565

Continuing Authority: Same as above
Address: Same as above

Facility Name: Unionville North WWTF
Facility Address: North 10th Street, Unionville, MO 63565

Legal Description: See Page 2
UTM Coordinates: See Page 2

Receiving Stream: Unnamed tributary to North Blackbird Creek (U)
First Classified Stream and ID: North Blackbird Creek (C) (0654)
USGS Basin & Sub-watershed No.: 10280201-0502

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 – POTW – SIC #4952

The use or operation of this facility shall be by or under the supervision of a Certified “D” Operator.

Two-cell lagoon / three overland flow fields / sludge retained in lagoon

Design population equivalent is 1,100.

Design flow is 110,000 gallons per day.

Actual flow is 226,000 gallons per day.

Design sludge production is 16.2 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

August 1, 2013

Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

March 31, 2016

Expiration Date

John Madros, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW – SIC #4952

Overland flow field

Legal Description: NW¼, NW¼, Sec. 36, T66N, R19W, Putnam County

UTM Coordinates: X = 500515, Y = 4481559

Outfall #002 – POTW – SIC #4952

Overland flow field

Legal Description: NW¼, NW¼, Sec. 36, T66N, R19W, Putnam County

UTM Coordinates: X = 500468, Y = 4481482

Outfall #003 – POTW – SIC #4952

Overland flow field

Legal Description: NW¼, NW¼, Sec. 36, T66N, R19W, Putnam County

UTM Coordinates: X = 500428, Y = 4481401

Outfall #004– Discharges from this outfall are no longer authorized, and shall be subject to 40 CFR 122.41(m) and reported according to 40 CFR 122.41(m)(3)(i) & (ii).

OUTFALL #001, #002 & #003	TABLE A-1. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS			PAGE NUMBER 3 of 8		
				PERMIT NUMBER MO-0054569		
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect through JULY 31, 2023 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/month	24 hr. estimate
Biochemical Oxygen Demand;	mg/L		65	45	once/month	grab
Total Suspended Solids	mg/L		110	70	once/month	grab
<i>E.coli</i> (Note 1)	#/100 ml		*	*	once/week	grab
pH – Units	SU	**		**	once/month	grab
Ammonia as N	mg/L	*		*	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>SEPTEMBER 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #20		once/permit cycle	grab	
WET TEST MONITORING REPORTS SHALL BE SUBMITTED <u>ONCE PER PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE by <u>SEPTEMBER 28, 2015</u> .						

* Monitoring requirement only.

** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.5 pH units.

OUTFALL #001, #002 & #003	TABLE A-2. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 4 of 8
		PERMIT NUMBER MO-0054569

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective **AUGUST 1, 2023** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/month	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		65	45	once/month	grab
Total Suspended Solids	mg/L		110	70	once/month	grab
<i>E. coli</i> (Note 1)	#/100 ml		630	126	once/week	grab
pH – Units	SU	**		**	once/month	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	4.9 8.4		1.3 2.9	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2023. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #20	once/permit cycle	grab
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WET TEST MONITORING REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE; THE FIRST REPORT IS DUE by SEPTEMBER 28, 2015.

* Monitoring requirement only.

** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.5 pH units.

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

**TABLE B.
INFLUENT MONITORING REQUIREMENTS**

The facility is required to meet a removal efficiency of 65% or more as a monthly average. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand ₅	mg/L	once/month	grab
Total Suspended Solids	mg/L	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE OCTOBER 28, 2013.

C. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated October 1, 1980, May 1, 2013 and August 15, 1994, and hereby incorporated as though fully set forth herein.

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
4. Water Quality Standards
 - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
5. Changes in Discharges of Toxic Substances
The permittee shall notify the Director as soon as it knows or has reason to believe:
 - (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established by the Director in accordance with 40 CFR 122.44(f).
 - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
6. Report as no-discharge when a discharge does not occur during the report period.
7. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

D. SPECIAL CONDITIONS (continued).

8. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.
9. The permittee shall submit a report annually in January to the Northeast Regional Office with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility for the previous year.
10. Bypasses are not authorized at this facility and are subject to 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3)(i), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Northeast Regional Office.
11. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
12. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain locked except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the department. The gate shall be closed and locked when the facility is not staffed.
13. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.
14. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.
15. An all-weather access road shall be provided to the treatment facility.
16. The outfalls shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
17. A minimum of two (2) feet freeboard must be maintained in the lagoon cell(s).
18. The berms of the lagoon(s) shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage to the berms.
19. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into the lagoon(s) and to divert stormwater runoff around the lagoon and protect embankments from erosion.
20. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
001	100%	once/permit cycle	grab	Any

Dilution Series							
AEC%	100% effluent	50% effluent	25% effluent	12.5% effluent	6.25% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

D. SPECIAL CONDITIONS (continued)

(a) WET Test Schedule and Follow-Up Requirements

- (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (i) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (ii) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.
 - (iii) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
- (2) The WET test will be considered a failure if mortality observed in effluent concentrations equal to or less than the AEC is significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.
- (3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
- (4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.
 - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (5) Follow-up tests do not negate an initial failed test.
- (6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
- (7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
- (8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
- (11) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the department on a case by case basis.
- (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing

D. SPECIAL CONDITIONS (continued)

- (4) shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
- (5) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
- (6) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (7) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and reconstituted water.
- (8) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (9) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.
- (10) Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

E. SCHEDULE OF COMPLIANCE

The facility shall attain compliance with final limitations for ammonia, *E. coli* and flow rate as soon as reasonably achievable or no later than **ten (10) years** of the effective date of this permit

1. Within 18 months after the effective date of this permit, the permittee shall submit an engineer's evaluation to determine whether upgrades are necessary to enable the facility to effectively treat the excess hydraulic loading to this facility and meet the final effluent limitations found in Table A-2 of this permit.
 - a. The evaluation shall either determine, if reduction of inflow and infiltration will reduce the hydraulic overloading, or if the design flow can be adjusted.
 - b. If the engineer's evaluation allows for an adjustment of the design flow, within 60 days of the evaluation, the facility shall request a design flow adjustment in the form of an application to modify this permit. The facility shall submit a complete application to modify, supporting documentation, and the appropriate fees. If the engineer's evaluation does not allow for an adjustment of the design flow, the facility shall apply for a construction permit to upgrade the facility to meet the needs for the actual flow of the facility.
 - c. If the engineer's evaluation shows that inflow and infiltration is the cause for the hydraulic overloading, within 60 days of the evaluation, the permittee shall submit a proposal that lists the plan of action, including timelines, to be taken to comply with the findings of the engineering report, along with estimated costs for any actions to be taken.
2. Within three (3) years of the effective date of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.
3. Within four (4) years of the effective date of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.
4. Within five (5) years of the effective date of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.
5. Within eight (8) years of the effective date of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.
6. Within ten (10) years of the effective date of this permit, the permittee shall attain compliance with the final effluent limits, for ammonia, *E. coli*.

Please submit progress reports to the Missouri Department of Natural Resources, Northeast Regional Office, 1709 Prospect Dr., Macon, Missouri, 63552.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL OF
MO-0054569
Unionville North WWTF

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for a Major Wastewater Treatment Facility (WWTF).

Part I – Facility Information

Facility Type: POTW - SIC #4952

Facility Description:

Two-cell lagoon / three overland flow fields / sludge retained in lagoon

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

- No.

Application Date: 01/13/2012

Expiration Date: 07/12/2012

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
#001	0.3503	Equivalent to Secondary	Domestic (sanitary)	2.7

Receiving Water Body's Water Quality & Facility Performance History:

No receiving stream studies have been conducted in relation to this facility. No water quality impacts are noted for North Blackbird Creek, however this facility is in EPA's 2010 Chariton River watershed which has a TMDL for bacteria. The TMDL requires all domestic wastewater facilities in the Chariton River Watershed (10280201 and 10280202) disinfect to the level of WBC-A criteria with effluent limits set at 630 cfu/100mL daily maximum and 126 cfu/100mL.

Comments:

During the previous inspection the facility was cited only for failing to report on some permit conditions. This facility is exceeding design flow. The only effluent limit violations reported during the previous permit cycle were:

10/31/2007	BOD	53 mg/L
09/30/2009	pH	5.65 SU

This permit renewal eliminates Outfall #004 emergency overflow. Discharge from this outfall is now considered a bypass and must be reported to the department as soon as possible. Discharge monitoring reports show that the facility did not use this outfall during the previous permit cycle. The facility is currently capable of complying with this permit condition with no new cost.

This renewal also adds ammonia and bacteria limits to this facility. *E. coli* limits are necessary to comply with EPA's Chariton River TMDL, however, the facility is not within two miles of a stream classified for whole body or secondary contact recreation; thus it is not required to meet the December 31, 2013 regulatory deadline for disinfection.

The affordability analysis for this permit takes into consideration the costs for upgrading both the North and South WWTFs for ammonia and disinfection treatment. It is assumed that the engineering evaluation for each facility will account for design flow exceedance as well as ammonia and disinfection treatment. The cost per user accounts for all 1,152 connections in Unionville. The affordability analysis accounting for both upgrades results in high cost burden for the community.

Part II – Operator Certification Requirements

Applicable; The Department requires this facility to retain the services of an operator with a D **Certification Level** due to the size and publicly owned nature of this facility. Modifications made to the wastewater treatment facility may cause the classification to be modified. Please see **Appendix - Classification Worksheet**

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.020(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
 - Municipalities
 - Public Sewer District:
 - County
 - Public Water Supply Districts:
 - Private sewer company regulated by the Public Service Commission:
 - State or Federal agencies:

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections.

Operator’s Name: Tim Wessel
 Certification Number: 2108
 Certification Level: D

The listing of the operator above only signifies that staff drafting this operating permit have reviewed appropriate Department records and determined that the name listed on the operating permit application has the correct and applicable Certification Level.

Part III– Operational Monitoring

As per [10 CSR 20-9.010(4)], the facility is required to conduct operational monitoring.

Part IV – Receiving Stream Information

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream’s beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC
Unnamed tributary to North Blackbird Creek	(U)	--	General Criteria	10280201-0502
North Blackbird Creek	(C)	0654	AQL, LWW, SCR, WBC-B	

* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).

** - Ecological Drainage Unit

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed tributary to North Blackbird Creek (U)	0.0	0.0	0.0

MIXING CONSIDERATIONS

Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].

Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

Part V – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

Not Applicable; The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

ANTI-BACKSLIDING:

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- All limits in this operating permit are at least as protective as those previously established; therefore, backsliding does not apply.

ANTIDegradation:

In accordance with Missouri’s Water Quality Standard [10 CSR 20-7.031(2)], the Department is to document by means of Antidegradation Review that the use of a water body’s available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

- No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

BIOSOLIDS & SEWAGE SLUDGE:

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address:

<http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

- Permittee is not authorized to land apply biosolids. Sludge/biosolids are stored in the lagoon.

COMPLIANCE AND ENFORCEMENT:

Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Not Applicable; The permittee/facility is not currently under Water Protection Program enforcement action.

PRETREATMENT PROGRAM:

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)].

Not Applicable; The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

REASONABLE POTENTIAL ANALYSIS (RPA):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Applicable; A RPA was conducted on ammonia. Please see **APPENDIX – RPA RESULTS**.

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

Applicable; Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(a)(3) & (b)(3)].

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):

Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

Additionally, Missouri RSMo §644.026.1 mandates that the Department require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities.

- In accordance with Missouri RSMo §644.026.1.(15) and 40 CFR Part 122.41(e), the permittee is required to develop and/or implement a program for maintenance and repair of the collection system and shall be required in this operating permit by either means of a Special Condition or Schedule of Compliance. In addition, the Department considers the development of this program as an implementation of this condition. Additionally, 40 CFR Part 403.3(o) defines a POTW to include any device and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW Treatment Plant.

At this time, the Department recommends the US EPA's Guide for Evaluating Capacity, Management, Operation and Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document # EPA 305-B-05-002). The CMOM identifies some of the criteria used by the EPA to evaluate a collection system's management, operation, and maintenance and was intended for use by the EPA, state, regulated community, and/or third party entities. The CMOM is applicable to small, medium, and large systems; both public and privately owned; and both regional and satellite collection systems. The CMOM does not substitute for the Clean Water Act, the Missouri Clean Water Law, and both federal and state regulations, as it is not a regulation.

SCHEDULE OF COMPLIANCE (SOC):

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Applicable; The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)]. The facility has been given a ten (10) year schedule of compliance to meet final effluent limits for ammonia, E. coli. The ten (10) year schedule of compliance allowed for this facility should provide adequate time to evaluate operations, obtain an engineering report and, if necessary raise funds, obtain a construction permit and implement upgrades required to meet effluent limits. It is assumed that the engineering evaluation for each facility will account for design flow exceedance as well as ammonia and disinfection treatment.

SCHEDULE OF COMPLIANCE (CONTINUED):

The SOC assumes that the City of Unionville will address both the North and South facilities during the next ten (10) years. It begins with 18 months for the permittee to obtain an engineering evaluation that addresses hydraulic loading as well as new ammonia and *E. coli* limits. The next milestone is a progress report three (3) years after issuance of the permit and annual reports for the following seven (7) years. The first two milestones are spread out to allow time to evaluate both the North and South facilities.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

Not Applicable; At this time, the permittee is not required to develop and implement a SWPPP.

VARIANCE:

As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

Not Applicable; This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable; Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C_e = \frac{(Q_e + Q_s)C - (C_s \times Q_s)}{(Q_e)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Number of Samples "n":

Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used.

WLA MODELING:

There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

Not Applicable; A WLA study was either not submitted or determined not applicable by Department staff.

WATER QUALITY STANDARDS:

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Applicable; Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

- Facility is a designated Major.
- Facility continuously or routinely exceeds its design flow.
- Facility (industrial) that alters its production process throughout the year.
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH₃)
- Facility is a municipality or domestic discharger with a Design Flow \geq 22,500 gpd.

40 CFR 122.41(M) - BYPASSES:

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass, is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

Applicable; Bypasses occur or have occurred at this facility.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Applicable; This facility is in the Chariton River watershed, it was listed on the 2008 Missouri 303(d) List for excessive bacteria attributed to rural nonpoint source pollution..

– This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s). In 2010, EPA developed a TMDL for this impairment. The TMDL requires all facilities within the Chariton River watershed (HUCs 10280201 and 10280202) to disinfect to WBC-A limits. <http://www.dnr.mo.gov/env/wpp/tmdl/0640-chariton-r-tmdl.pdf>

Part VI – Effluent Limits Determination

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

As per Missouri’s Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall’s Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

All Other Waters [10 CSR 20-7.015(8)]

OUTFALL #001, #002 & #003 – OVERLAND FLOW OUTFALLS

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Modified	Previous Permit Limitations
Flow	MGD	1	*	-	*	No	*
BOD ₅	mg/L	1, 4	-	65	45	No	65/45
TSS	mg/L	1, 4	-	110	70	No	110/70
pH	SU	1, 4	≥ 6.5	-		Yes	≥ 6.0
Ammonia as N (April 1 – Sept 30)	mg/L	2, 3, 5	4.9	-	1.3	Yes	*
Ammonia as N (Oct 1 – March 31)	mg/L	2, 3, 5	8.4	-	2.9	Yes	*
Escherichia coli	**	1, 10	-	630	126	Yes	***
Oil & Grease (mg/L)	mg/L	1, 3	15	-	10	No	15/10
Whole Effluent Toxicity (WET) Test	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				

* - Monitoring requirement only.

** - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.

*** - Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 1. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET Test Policy |
| 6. Antidegradation Review | |

OUTFALL #001, #002 & #003 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD₅).**
Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Total Suspended Solids (TSS).**
Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **pH.** Effluent limitation range is ≥ 6.5 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.

- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU No mixing considerations allowed; therefore, WLA = appropriate criterion.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30

Chronic WLA: $C_e = ((0.3503 + 0.0)1.5 - (0.0 * 0.01))/0.3503$
 $C_e = 1.5 \text{ mg/L}$

Acute WLA: $C_e = ((0.3503 + 0.0)12.1 - (0.0 * 0.01))/0.3503$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 1.5 \text{ mg/L} (0.667) = 1.0 \text{ mg/L}$

[CV =1.002, 99th Percentile, 30 day avg.]

$LTA_a = 12.1 \text{ mg/L} (0.204) = 2.47 \text{ mg/L}$

[CV =1.002, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 1.0 mg/L (4.91) = 4.9 mg/L

[CV =1.002, 99th Percentile]

AML = 1.0 mg/L (1.33) = 1.3 mg/L

[CV =1.002, 95th Percentile, n =30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((0.3503 + 0.0)3.1 - (0.0 * 0.01))/0.3503$
 $C_e = 3.1 \text{ mg/L}$

Acute WLA: $C_e = ((0.3503 + 0.0)12.1 - (0.0 * 0.01))/0.3503$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L} (0.747) = 2.32 \text{ mg/L}$

[CV =0.711, 99th Percentile, 30 day avg.]

$LTA_a = 12.1 \text{ mg/L} (0.277) = 3.35 \text{ mg/L}$

[CV =0.711, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 2.32 mg/L (3.61) = 8.4 mg/L

[CV =0.711, 99th Percentile]

AML = 2.32 mg/L (1.23) = 2.9 mg/L

[CV =0.711, 95th Percentile, n =30]

- **Escherichia coli (E. coli).** Monthly average of 126 per 100 ml as a geometric mean and Weekly Average of 630 during the recreational season (April 1 – October 31), in accordance with EPA’s 2010 Chariton River TMDL. An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d).
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **WET Test.** WET Testing schedules and intervals are established in accordance with the Department’s Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

Acute

No less than ONCE/PERMIT CYCLE:

Municipality or domestic facility with a design flow $\geq 22,500 \text{ gpd}$, but less than 1.0 MGD.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

Minimum Sampling and Reporting Frequency Requirements.

All Outfalls:

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/month	once/month
BOD ₅	once/month	once/month
TSS	once/month	once/month
pH	once/month	once/month
Ammonia as N	once/month	once/month
<i>E. coli</i>	once/week	once/month
Oil & Grease	once/month	once/month

Part VII – Finding of Affordability

Pursuant to Section 644.145, RSMo., the Department is required to determine whether a permit or decision is affordable and makes a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publically-owned treatment works.

Applicable; The Department is required to determine findings of affordability because the permit applies to a **combined or separate sanitary sewer system for a publically-owned treatment works.**

Finding of affordability - The department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. If the empirical cost data was used by the permit writer, this data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic financial information that the community provided as contemplated by Section 644. 145.3. See **Appendix – Affordability Analysis**

Part VIII – Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

PERMIT SYNCHRONIZATION:

The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future.

PUBLIC NOTICE:

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- The Public Notice period for this operating permit was from (04/28/2013) to (05/28/2013). Responses to the Public Notice of this operating permit warrant the modification of effluent limits and/or the terms and conditions of this permit.

- Comment: This draft permit includes numeric ammonia limits based on the results of a reasonable potential analysis. The stated “winter” limits (October 1 through March 31) show a MDL of 8.3 mg/L. We understand that the Department uses a spreadsheet-style computation tool to arrive at his value that can, on occasion, create rounding variations and inaccuracies. This is one such case. When the values, as presented in the text of the Fact Sheet are used (Page 8), a MDL value of 8.4 mg/L is derived. The City and MPUA would appreciate the use of 8.4 mg/L value.
 - Response: The effluent was corrected to 8.4 mg/L as asked in the comment letter.
- Comment: The draft permit’s section E. Schedule of Compliance; Paragraph 1.; a Sub-paragraph currently reads: *The evaluation shall either determine whether upgrades are necessary to enable the facility to, if reduction of inflow and infiltration will reduce the hydraulic overloading, or if the design flow can be adjusted.* MPUA would recommend the following language for clarity’s sake. “The evaluation shall either determine, if reduction of inflow and infiltration will reduce the hydraulic overloading, or if the design flow can be adjusted.”
 - Response: The language was corrected as requested.
- Comment: MPUA notes in the Fact Sheet (Page 6) under the 40 CFR 122.41(m) – Bypasses paragraph that the Department continues to use the sentence: “ A bypasses, *which includes blending*, is defined as an intentional diversion of waste streams from any portion of a treatment facility...” The code of Federal Regulations does not address blending in the context. This short phrase should be removed from this bypassing paragraph because it is not grounded in current State or Federal regulation. It is our hope that the proposed Missouri State-issued Effluent Regulations will address this issue.
 - Response: The language was corrected as requested.
- Comment: The City is currently in the design process of a project to rehabilitate portions of the collection system and hopes to reduce I&I reaching the treatment facilities. The City’s anticipates completion of this project next year and would like to then collect 1 year worth of data to gauge the impact to the hydraulic overloading of the treatment facility. Therefore, we would request that the initial report not be due until 2 years after the effective date of the permit.
 - Response: The department considers 18 months an adequate amount of time to complete the evaluation. Adequate flow data associated with I&I is normally gathered from the wettest months of spring and early summer, therefore an entire year for data gathering is unnecessary. Because the city has already begun this evaluation process, 18 months should be more than adequate to complete the initial evaluation.

DATE OF FACT SHEET: JANUARY 24, 2013

COMPLETED BY:

**AMANDA SAPPINGTON, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(573) 751-8728
amanda.sappington@dnr.mo.gov**

REVISED BY: MARCH 22, 2013

**LACEY HIRSCHVOGEL, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(573) 751-9391
lacey.hirschvogel@dnr.mo.gov**

Appendices

APPENDIX - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	1
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	
PRELIMINARY TREATMENT – Headworks		
Screening and/or comminution	3	
Grit removal	3	
Plant pumping of main flow (lift station at the headworks)	3	
PRIMARY TREATMENT		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
Push – button or visual methods for simple test such as pH, Settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	5
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	4
Total from page ONE (1)	----	10

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)		
Variation do not exceed those normally or typically expected	0	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	
Raw wastes subject to toxic waste discharge	6	
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	
Stabilization ponds without aeration	5	5
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
DISINFECTION		
Chlorination or comparable	5	
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Total from page TWO (2)	----	5
Total from page ONE (1)	---	10
Grand Total	---	15

- A: 71 points and greater
- B: 51 points – 70 points
- C: 26 points – 50 points
- D: 0 points – 25 points

APPENDIX – RPA RESULTS:

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) mg/L	12.10	19.83	1.50	19.83	55	9.2/0.05	1.002	4.912	Yes
Total Ammonia as Nitrogen (Winter) mg/L	12.10	52.10	3.10	52.10	52	28.9/0.2	0.711	3.610	Yes

N/A – Not Applicable

* - Units are (µg/L) unless otherwise noted.

** - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent. If the number of samples is < 10, then the default CV value must be used in the WQBEL for the applicable constituent.

*** - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.

RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).

n – Is the number of samples.

MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.

RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request.

APPENDIX – AFFORDABILITY ANALYSIS:

**Missouri Department of Natural Resources
Water Protection Program
Affordability Determination and Finding
(In accordance with RSMo 644.145)**

**City of Unionville
For the purpose of renewal of
Operating Permit MO-0054569 and MO-0026646**

Section 644.145 RSMo requires DNR to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws “pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works.”

The City of Unionville is currently renewing two permits (the North and South WWTFs), this affordability analysis considers the costs for both facilities.

Facility Description:

Unionville North WWTF (MO-0054569)

Two-cell lagoon / three overland flow fields / sludge retained in lagoon

Receiving Stream: Unnamed tributary to North Blackbird Creek (U)

First Classified Stream and ID: North Blackbird (C) (0654)

USGS Basin & Sub-watershed No.: 102802010502

Unionville South WWTF (MO-0026646)

Two-cell lagoon / three overland flow fields / sludge retained in lagoon

Receiving Stream: Unnamed tributary to North Blackbird Creek (U)

First Classified Stream and ID: North Blackbird Creek (C) (0654)

USGS Basin & Sub-watershed No.: 102802010502

	<u>North</u>	<u>South</u>
Residential Connections:	460	599
Commercial Connections:	43	50
Total Connections ¹ :	503	649
City of Unionville total connections	<u>1,152</u>	

Proposed New Permit Requirements or Requirements Now Being Enforced:

This renewal requires adding ammonia and disinfection treatment at both facilities. It is assumed that the engineering evaluation for each facility will account for design flow exceedance as well as ammonia and disinfection treatment. This analysis also assumes the addition of UV disinfection because initial cost estimates indicate it is the most cost efficient technology.

Range of Anticipated Costs Associated with Complying with the New Requirements:

The department estimates the cost for adding ammonia and UV disinfection treatment at both facilities is between \$3,273,400 and \$6,831,440. This cost, if financed through user fees, might cost each household between \$35.25 and \$64² per month.

¹ The number of connections was obtained from Form B of the application for permit renewal.

² $\{[(\text{Annual O\&M}/365)/\text{gpd}]*5000\} + \text{debt retirement}/\text{user}/\text{mo} + \text{replacement cost}/\text{user} (\# \text{ of users} = \# \text{ total connections})$

Break-down of Cost per Facility

North WWTF		
Ammonia	\$ 1,027,600.00	\$ 2,390,000.00
UV	\$ 242,040.00	\$ 242,040.00
Total	\$ 1,269,640.00	\$ 2,632,040.00

South WWTF		
Ammonia	\$ 1,530,000.00	\$ 3,726,000.00
UV	\$ 473,400.00	\$ 473,400.00
Total	\$ 2,003,400.00	\$ 4,199,400.00

(1) A community’s financial capability and ability to raise or secure necessary funding;

Current cost per user:	\$35.25/mo.
Municipal Bond Rating (if applicable):	NA
Bonding Capacity:	NA
<i>(General Obligation Bond capacity allowed by constitution: cities=up to 20% of taxable tangible property sewer districts=up to 5% of taxable tangible property)</i>	
Current outstanding debt:	NA

If the community increases user rates to finance and operate an upgrade, the rates may need to be between \$35.25 and \$64 per month, which may make each household rate as high as 2.3% of the community’s median household income (MHI). Percentages above 2% could create a high burden for a community.

(2) Affordability of pollution control options for the individuals or households of the community;

Current annual operating costs (exclude depreciation):	NA
Current monthly cost per user:	\$35.25
Estimated capital cost of pollution control options:	\$3,273,400 - \$6,831,440
Annual operation & maintenance cost:	\$152,109 - \$216,033
Estimated resulting monthly cost per user:	\$35.25 - \$64
Median Household Income ²	\$33,482
Cost per user as a percent of Median Household Income:	1.1% - 2.3%

Check Appropriate Box	Financial Impact	Residential Indicator (Usage Rate as a percent of MHI = annual user cost/MHI)
	Low	Less than 1% MHI
X	Medium	Between 1% and 2% MHI
X	High	Greater than 2% MHI

If increase user rates are required to finance the new permit requirements, the rates could be between 1.1% and 2.3% of the MHI, and result in a medium to high financial impact.

(3) An evaluation of the overall costs and environmental benefits of the control technologies;

This permit renewal requires final effluent limitations for Ammonia as N (NH₃) based on Missouri Water Quality Standards (WQS) 10 CSR 20-7 and the Clean Water Act. NH₃ is toxic to early stages of aquatic life. NH₃ removal prevents damage to aquatic life and enables the receiving stream to support a more healthy and diverse aquatic life community. The following calculations illustrate the difference in pounds per day (lbs/day) of NH₃ discharged currently to lbs/day required by effluent limits in this permit:

$$\text{Pounds of Ammonia as N per day} = (\text{flow}) \times (\text{NH}_3 \text{ mg/L}) \times (8.34)$$

Unionville North WWTF – Unnamed tributary to North Blackbird Creek

Current Performance (2011-2012 DMR data)

Flow = 0.226 MGD:

Summer Season:

Monthly Average = 0.226 x 1.88 x 8.34 = 3.54 lbs/day

Winter Season:

Monthly Average = 0.226 x 8.15 x 8.34 = 15.4 lbs/day

Necessary Performance

Flow = 0.226 MGD:

Summer Season:

Monthly Average = 0.226 x 1.3 x 8.34 = 2.45 lbs/day

Winter Season:

Monthly Average = 0.226 x 2.8 x 8.34 = 5.31 lbs/day

Environmental Benefit to Ammonia Removal

		<u>Summer</u>	<u>Winter</u>
Current average performance (lbs/day)	=	3.54	15.4
<u>-Necessary average performance limitations (lbs/day)</u>	=	<u>-2.45</u>	<u>-5.31</u>
Environmental Benefit (lbs/day)	=	1.09	10.1

Improving NH₃ removal to meet final effluent limits at both facilities will prevent the release of up to 10.1 pounds of NH₃ per day to the Unnamed tributary to North Blackbird Creek.

Unionville South WWTF – Unnamed tributary to South Blackbird Creek

Current Performance (2011-2012 DMR data)

Flow = 0.367 MGD:

Summer Season:

Monthly Average = 0.367 x 3.02 x 8.34 = 9.24 lbs/day

Winter Season:

Monthly Average = 0.367 x 6.12 x 8.34 = 18.7 lbs/day

Necessary Performance

Flow = 0.367 MGD:

Summer Season:

Monthly Average = 0.367 x 1.4 x 8.34 = 4.28 lbs/day

Winter Season:

Monthly Average = 0.367 x 2.8 x 8.34 = 8.57 lbs/day

Environmental Benefit to Ammonia Removal

		<u>Summer</u>	<u>Winter</u>
Current average performance (lbs/day)	=	9.24	18.7
<u>-Necessary average performance limitations (lbs/day)</u>	=	<u>-4.28</u>	<u>-8.57</u>
Environmental Benefit (lbs/day)	=	4.96	10.13

Improving NH₃ removal to meet final effluent limits at both facilities will prevent the release of up to 12.5 pounds of NH₃ per day to the Unnamed tributary to South Blackbird Creek.

E. coli is an indicator of the presence of fecal contamination in water and possible disease-causing bacteria and viruses in water and wastewater. EPA's Chariton River TMDL requires that all facilities in this watershed disinfect to the WBC-A standard to remove the Chariton River impairment. Disinfection benefits human health by reducing exposure to disease-causing bacteria and

viruses. The City of Unionville will have to upgrade the treatment facility with a disinfection system in order to meet the final effluent limitations.

(4) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:

- (a) *Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations; and*
- (b) *Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained;*

Potentially Distressed Populations	
Unemployment for City of Unionville ³	5.6%
Median Household Income (MHI) in City of Unionville ⁴	\$33,482
Percent Change in MHI (1990-2010)	+59.1%
Percent Population Growth/Decline (1990-2010) ⁵	-6.2%
Change in Median Age in Years (1990-2010)	-6.0% (from 47.8 to 41.8)
Percent of Households in Poverty ⁶	24.7%
Percent of Households Relying on Food Stamps	17.1%

Opportunity for cost savings or cost avoidance:

If available, connection to a larger centralized sewer system in the area may be more cost effective for the community.

The permittee may apply for State Revolving Fund (SRF) financial support in order to help fund a Capital Improvements Plan. Other loans and grants also exist for which the facility may be eligible. Contact information for the department’s Financial Assistance Center (FAC) and more information can be found on the department’s website at <http://dnr.mo.gov/env/wpp/srf/wastewater-assistance.htm>.

If the permittee can demonstrate that the proposed pollution controls result in substantial and widespread economic and social impact, the permittee may use the Use Attainability Analysis (UAA) process to modify designated uses of the receiving water body.

Opportunity for changes to implementation/compliance schedule:

The ten (10) year schedule of compliance allowed for these facilities should provide adequate time to evaluate operations, obtain an engineering report and, if necessary raise funds, obtain a construction permit and implement upgrades required to meet effluent limits. The facility may propose changes to the schedule of compliance based on their own cost estimate or financial information.

(5) An assessment of other community investments relating to environmental improvements;

This affordability analysis takes into consideration upgrades at the Unionville North and South WWTFs. The community did not report any other investments relating to environmental improvements.

³ Unemployment data was obtained from American Fact Finder at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_S1901&prodType=table

⁴ Median Household Income is provided by the American Fact Finder – INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION ADJUSTED DOLLARS) – 2006 – 2010 American Community Survey 5-Year Estimates, which can be found online at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_S1901&prodType=table

⁵ Population trend data was obtained from online at http://mcdc1.missouri.edu/cgi-bin/profiler/profiler.py?profile_id=SF1_2010&geoids=16000US2912988

⁶ Poverty data is provided by the American Fact Finder – POVERTY STATUS IN THE PAST 12 MONTHS – 2006-2010 American Community Survey 5-Year Estimates, which can be found online at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_DP03&prodType=table

(6) An assessment of factors set forth in the United States Environmental Protection Agency's guidance, including but not limited to the "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development" that may ease the cost burdens of implementing wet weather control plans, including but not limited to small system considerations, the attainability of water quality standards, and the development of wet weather standards;

Secondary indicators for consideration:

Indicators	Strong (3 points)	Mid-Range (2 points)	Weak (1 point)	Score
Bond Rating Indicator	Above BBB or Baa	BBB or Baa	Below BBB or Baa	NA
Overall Net Debt as a % of Full Market Property Value	Below 2%	2% - 5%	Above 5%	NA
Unemployment Rate	>1% below Missouri average	± 1% of Missouri average 5.6%-6.6% = 1.0	>1% above Missouri average	2
Median Household Income	More than 25% above MO MHI	± 25% of MO MHI	More than 25% below MO MHI $44,306 - 33,482 = 10,824 / 44306 = .24$	1
Property Tax Revenues as a % of Full Market Property Value	Below 2%	2% - 4%	Above 4%	NA
Property Tax Collection Rate	Above 98%	94% - 98%	Below 94%	NA

Secondary Indicators Average Score: 1.5
Residential Indicator (from Criteria #2 above): 1.1% - 2.3%

Financial Capability Matrix:

Secondary Indicators Score from above ↓	Residential Indicator (User rate as a % of MHI)		
	Low (Below 1%)	Mid-Range (Between 1.0% and 2.0%)	High (Above 2.0%)
Weak (below 1.5)	Medium Burden	High Burden	High Burden
Mid-Range (1.5 – 2.5)	Low Burden	Medium Burden	High Burden
Strong (above 2.5)	Low Burden	Low Burden	Medium Burden

Estimated Financial Burden: Medium to High Burden

(7) An assessment of any other relevant local community economic condition.

The community did not report any other relevant local economic conditions.

Conclusion and Finding

As a result of new regulations, the department is proposing modifications to the current operating permit that may require the WWTF to add ammonia, E. coli treatment. The department identified the actions for which an affordability analysis is required under Section 644.145 RSMo.

The department estimates that adding ammonia, E. coli treatment to the North and South WWTFs will cost the City of Unionville an estimated \$3,273,400 - \$6,831,440. Should these cost(s) be financed through user fees, it may require user fees between 1.1% and 2.3% of the community's MHI.

The department considered all seven (7) of the criteria presented in subsection 644.145.3 when evaluating the affordability of the relevant actions. Taking into consideration these criteria, this analysis examined whether the above referenced permit modifications affects the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household.

In this case the department must also considered the logistics of evaluating and upgrading two plants simultaneously. Unless the permittee decides to combine flows to one new larger capacity plant, upgrades for both facilities could require significant extra time to organize and execute. Considering this work burden and the above affordability criteria the department hereby finds that the action described above will likely result in a **high** burden with regard to the community's overall financial capability and a medium to high financial impact for most individual customers/households. However, this determination is based on readily available data, and may over-estimate the financial impact on the community.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH
FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

FACILITY NAME Unionville North Wastewater Treatment Facility	
PERMIT NO. MO-0054569	COUNTY Putnam

APPLICATION OVERVIEW

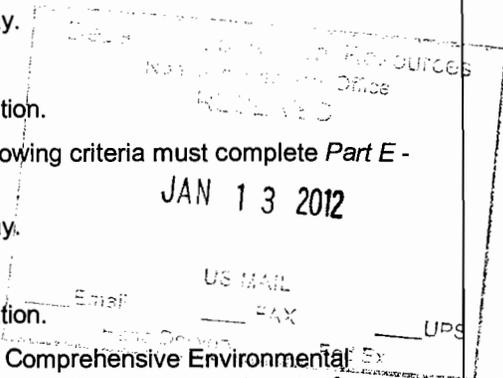
Form B2 has been developed in a modular format and consists of Parts A, B and C and a Supplemental Application Information (Parts D, E, F and G) packet. All applicants must complete Parts A, B and C. Some applicants must also complete parts of the Supplemental Application Information packet. The following items explain which parts of Form B2 you must complete. Submittal of an incomplete application may result in the application being returned.

BASIC APPLICATION INFORMATION

- A. Basic Application Information for all Applicants. All applicants must complete Part A.
- B. Additional Application Information for all Applicants. All applicants must complete Part B.
- C. Certification. All applicants must complete Part C.

SUPPLEMENTAL APPLICATION INFORMATION

- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:
 - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
 - 2. Is required to have or currently has a pretreatment program.
 - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:
 - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
 - 2. Is required to have or currently has a pretreatment program.
 - 3. Is otherwise required by the permitting authority to provide the information.
- F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete *Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes*.
 SIUs are defined as:
 - 1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N.
 - 2. Any other industrial user that meets one or more of the following:
 - i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
 - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
 - iii. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems*.



ALL APPLICANTS MUST COMPLETE PARTS A, B and C

AP9592
C8401



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH
FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

FOR AGENCY USE ONLY	
CHECK NUMBER NO FEE Required	
DATE RECEIVED 1/26/12	FEE SUBMITTED <input checked="" type="checkbox"/> (K)

PART A – BASIC APPLICATION INFORMATION

1. This application is for:

- An operating permit and antidegradation review public notice.
- A construction permit following an appropriate operating permit and antidegradation review public notice.
- A construction permit, a concurrent operating permit and antidegradation review public notice.
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).
- An operating permit for a ~~new or unpermitted facility~~. Construction Permit # _____
- An operating permit renewal: Permit #MO- 0054569 Expiration Date 7/12/12
- An operating permit modification: Permit #MO- _____ Reason: _____

1.1 Is this a Federal/State Funded Project? Yes No Funding Agency/Project #: _____

1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)? Yes No **N/A**

2. FACILITY

NAME Unionville North Wastewater Treatment Facility		TELEPHONE NUMBER WITH AREA CODE 660-292-2809	
ADDRESS (PHYSICAL) North 10th Street	CITY Unionville	STATE MO	ZIP 63565
2.1 LEGAL DESCRIPTION (Plant Site): NW 1/4, NW 1/4, NW 1/4, Sec. 36, T 66N, R 19W		County Putnam	
2.2 UTM Coordinates Easting (X): <u>500872</u> Northing (Y): <u>4481733</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			

3. OWNER

NAME City of Unionville		TELEPHONE NUMBER WITH AREA CODE 660-292-2809	
ADDRESS P.O. Box 255	CITY Unionville	STATE MO	ZIP 63565

3.1 Request review of draft permit prior to Public Notice? Yes No

4. CONTINUING AUTHORITY: Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.

NAME City of Unionville		CITY Unionville	
ADDRESS P.O. Box 255	CERTIFICATE NUMBER (IF APPLICABLE)	STATE MO	ZIP 63565

5. OPERATOR

NAME Tim Wessel		TELEPHONE NUMBER WITH AREA CODE 660-292-2809	
TITLE Operator			

6. FACILITY CONTACT

NAME Tim Wessel		TITLE Operator	
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MO 780-1805 (09-08)

FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 001-004
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PART A – BASIC APPLICATION INFORMATION

7. ADDITIONAL FACILITY INFORMATION

7.1 BRIEF DESCRIPTION OF FACILITIES

Treatment is provided by a two-cell lagoon followed by overland flow. Each of the three overland flow fields has its own outfall (001, 002 & 003).

7.2 TOPOGRAPHIC MAP. ATTACH TO THIS APPLICATION A TOPOGRAPHIC MAP OF THE AREA EXTENDING AT LEAST ONE MILE BEYOND FACILITY PROPERTY BOUNDARIES. THIS MAP MUST SHOW THE OUTLINE OF THE FACILITY AND THE FOLLOWING INFORMATION. (YOU MAY SUBMIT MORE THAN ONE MAP IF ONE MAP DOES NOT SHOW THE ENTIRE AREA.)

- a. The area surrounding the treatment plant, including all unit processes.
- b. The location of the downstream landowner(s). (See item 10.)
- c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- d. The actual point of discharge.
- e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- f. Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed.
- g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored or disposed.

7.3 PROCESS FLOW DIAGRAM OR SCHEMATIC. PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.

7.4 FACILITY SIC CODE <u>4952</u>	DISCHARGE SIC CODE: <u>4952</u>	FACILITY NAICS CODE: <u>221320</u>	DISCHARGE NAICS CODE: <u>221320</u>
--------------------------------------	------------------------------------	---------------------------------------	--

7.5 NUMBER OF SEPARATE DISCHARGE POINTS
4

7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT <u>814</u>	DESIGN POPULATION EQUIVALENT 1,100
---	---------------------------------------

NUMBER OF UNITS PRESENTLY CONNECTED
 HOMES 359 APARTMENTS 80 TRAILERS 21 OTHER 43

TOTAL DESIGN FLOW (ALL OUTFALLS) 110,000 gpd	ACTUAL FLOW 226,000 gpd
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7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY?
 Yes No (If Yes, attach an explanation.)

7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES
10

7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2? Yes No

7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR? Yes No

A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS All	B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR? All
--	---

7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	--

7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY?
 Yes No

7.14 LIST ALL PERMIT VIOLATIONS, INCLUDING EFFLUENT LIMIT EXCEEDANCES IN THE LAST FIVE YEARS. ATTACH A SEPARATE SHEET IF NECESSARY. IF NONE, WRITE NONE.

8. LABORATORY CONTROL INFORMATION

8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

Lab work conducted outside of plant.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Push-button or visual methods for simple test such as pH, settleable solids.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 001
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PART A – BASIC APPLICATION INFORMATION

9. SLUDGE HANDLING, USE AND DISPOSAL

9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25?
 Yes No

9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS
 Design Dry Tons/Year 16.2 Actual Dry Tons/Year

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES

9.4 SLUDGE STORAGE PROVIDED
 Cubic Feet Days of Storage Average Percent Solids of Sludge No Sludge Storage is Provided

9.5 TYPE OF STORAGE
 Holding Tank Basin Building Concrete Pad Other (Describe) _____

9.6 SLUDGE TREATMENT
 Anaerobic Digester Storage Tank Lime Stabilization Lagoon
 Aerobic Digester Air or Heat Drying Composting Other (Attach Description)

9.7 SLUDGE USE OR DISPOSAL
 Land Application Contract Hauler Hauled to Another Treatment Facility Solid Waste Landfill
 Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) Incineration
 Other (Attach Explanation Sheet) _____

9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY

NAME

ADDRESS	CITY	STATE	ZIP
---------	------	-------	-----

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-
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9.9 SLUDGE USE OR DISPOSAL FACILITY

By Applicant By Others (Complete Below)

NAME

ADDRESS	CITY	STATE	ZIP
---------	------	-------	-----

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-
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9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503?
 Yes No (Attach Explanation)

10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)

NAME
 (Renter: Randy Griswold) Owner: Lorene Danielson

ADDRESS (16528 300th Street) 605 Highland	CITY (Unionville) Fairfield	STATE (MO) IA	ZIP (63565) 52556
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11. DRINKING WATER SUPPLY INFORMATION

11.1 SOURCE OF YOUR DRINKING WATER SUPPLY

A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY)
 Unionville

B. PRIVATE WELL

C. SURFACE WATER (LAKE, POND OR STREAM)

11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)?
 Yes No

11.3 DOES YOUR SUPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY?
 Yes No

END OF PART A

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 001
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PART B – ADDITIONAL APPLICATION INFORMATION

20. INFLOW AND INFILTRATION

ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION.

Gallons Per Day 111,000

BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.

See Attached

20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)

ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR?

Yes No If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

NAME

MAILING ADDRESS

TELEPHONE NUMBER WITH AREA CODE

RESPONSIBILITIES OF CONTRACTOR

20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)

A. List the outfall number that is covered by this implementation schedule Outfall No. A1	B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	--

20.3 WASTEWATER DISCHARGES: COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.

20.4 DESCRIPTION OF OUTFALL

OUTFALL NUMBER 001

A. LOCATION
 ¼ NW ¼ NW ¼ SW Section 36 Township 66N Range 19 E W
 UTM Coordinates Easting (X): 500510 Northing (Y): 4481620
 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

B. Distance from Shore (If Applicable) _____ ft.	C. Depth Below Surface (If Applicable) _____ ft.	D. Average Daily Flow Rate <u>0.037</u> mgd
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E. Does this outfall have either an intermittent or periodic discharge?
 Yes No If Yes, Provide the following information:

Number of Days Per Year Discharge Occurs:	Average Duration of Each Discharge:	Average Flow Per Discharge: mgd	Months in Which Discharge Occurs:
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Is Outfall Equipped with a Diffuser? Yes No

20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water
 Unnamed tributary to North Blackbird Creek

B. Name of Watershed (If Known) U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)

B. Name of State Management/River Basin (If Known) U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known)

B. Critical Flow of Receiving Stream (If Applicable) Acute _____ cfs Chronic _____ cfs	B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO ₃
---	---

FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 001
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PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply

Primary Secondary Advanced Other (Describe) Overland flow

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)

Design BOD₅ Removal Or Design CBOD₅ Removal 65 % Design SS Removal 65 %
Design P Removal % Design N Removal % Other %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:
None

If disinfection is by chlorination, is dechlorination used for this outfall? Yes No

Does the treatment plant have post aeration? Yes No

20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.

OUTFALL NUMBER 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	6.40	S.U.		S.U.	53
pH (Maximum)	9.76	S.U.		S.U.	53
FLOW RATE	0.446	MGD	0.089	MGD	Continuous
TEMPERATURE (Winter)	13.9	°C	6.1	°C	10
TEMPERATURE (Summer)	26.8	°C	18.7	°C	16

*For pH report a minimum and a maximum daily value.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		

Conventional and Nonconventional Compounds

BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD ₅		mg/L		mg/L			
	CBOD ₅	27	mg/L	10	mg/L	53	5210B	45
FECAL COLIFORM			#/100 mL		#/100 mL			NA
TOTAL SUSPENDED SOLIDS (TSS)	38		mg/L	15	mg/L	53	USGS 1-3765-85	70
AMMONIA (AS N)	16.4		mg/L	3.82	mg/L	53	4500B	NA
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN			mg/L		mg/L			
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L			
OIL AND GREASE	12.1		mg/L	5.4	mg/L		1664A	10
PHOSPHORUS (TOTAL)			mg/L		mg/L			
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L			
OTHER			mg/L		mg/L			

END OF PART B

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 002
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PART B – ADDITIONAL APPLICATION INFORMATION

20. INFLOW AND INFILTRATION

ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION.

Gallons Per Day

BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.

20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)

ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR?

Yes No If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

NAME

MAILING ADDRESS

TELEPHONE NUMBER WITH AREA CODE

RESPONSIBILITIES OF CONTRACTOR

20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)

A. List the outfall number that is covered by this implementation schedule
Outfall No.

B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies.
Yes No

20.3 WASTEWATER DISCHARGES: COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.

20.4 DESCRIPTION OF OUTFALL

OUTFALL NUMBER

A. LOCATION

¼ NW ¼ NW ¼ SW Section 36 Township 66N Range 19 E W

UTM Coordinates Easting (X): 500477 Northing (Y): 4481479
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

B. Distance from Shore (If Applicable) _____ ft.

C. Depth Below Surface (If Applicable) _____ ft.

D. Average Daily Flow Rate
0.037 mgd

E. Does this outfall have either an intermittent or periodic discharge?
 Yes No If Yes, Provide the following information:

Number of Days Per Year Discharge Occurs:	Average Duration of Each Discharge:	Average Flow Per Discharge: mgd	Months in Which Discharge Occurs:
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Is Outfall Equipped with a Diffuser? Yes No

20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water
Unnamed tributary to North Blackbird Creek

B. Name of Watershed (If Known)	U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
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B. Name of State Management/River Basin (If Known)	U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known)
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B. Critical Flow of Receiving Stream (If Applicable) Acute _____ cfs Chronic _____ cfs	B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO ₃
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FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 002
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PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply
 Primary Secondary Advanced Other (Describe) Overland flow

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)
 Design BOD₅ Removal Or Design CBOD₅ Removal 65 % Design SS Removal 65 %
 Design P Removal % Design N Removal % Other %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:
 None

If disinfection is by chlorination, is dechlorination used for this outfall? Yes No

Does the treatment plant have post aeration? Yes No

20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.

OUTFALL NUMBER 002

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	6.92	S.U.		S.U.	53
pH (Maximum)	8.98	S.U.		S.U.	53
FLOW RATE	0.375	MGD	0.090	MGD	Continuous
TEMPERATURE (Winter)	14.3	°C	6.3	°C	8
TEMPERATURE (Summer)	26.7	°C	19.2	°C	16

*For pH report a minimum and a maximum daily value.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		
Conventional and Nonconventional Compounds							
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD ₅		mg/L		mg/L		
	CBOD ₅	53	mg/L	15	mg/L	53	5210B 45
FECAL COLIFORM		#/100 mL		#/100 mL			NA
TOTAL SUSPENDED SOLIDS (TSS)	56	mg/L	18	mg/L	53	USGS 1-3765-85	70
AMMONIA (AS N)	10.8	mg/L	3.88	mg/L	51	4500B	NA
CHLORINE (TOTAL RESIDUAL, TRC)		mg/L		mg/L			
DISSOLVED OXYGEN		mg/L		mg/L			
TOTAL KJELDAHL NITROGEN (TKN)		mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN		mg/L		mg/L			
OIL AND GREASE	11.1	mg/L	5.7	mg/L	51	1664A	10
PHOSPHORUS (TOTAL)		mg/L		mg/L			
TOTAL DISSOLVE SOLIDS (TDS)		mg/L		mg/L			
OTHER		mg/L		mg/L			

END OF PART B

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL		
FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 003

PART B – ADDITIONAL APPLICATION INFORMATION

20. INFLOW AND INFILTRATION

ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION.
Gallons Per Day _____

BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.

20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)

ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR?
Yes No If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

NAME _____

MAILING ADDRESS _____

TELEPHONE NUMBER WITH AREA CODE _____

RESPONSIBILITIES OF CONTRACTOR _____

20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)

<p>A. List the outfall number that is covered by this implementation schedule Outfall No. _____</p>	<p>B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input type="checkbox"/> No <input type="checkbox"/></p>
--	--

20.3 WASTEWATER DISCHARGES: COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.

20.4 DESCRIPTION OF OUTFALL

OUTFALL NUMBER _____

A. LOCATION
 ¼ NW ¼ NW ¼ SW Section 36 Township 66N Range 19 E W
 UTM Coordinates Easting (X): 500411 Northing (Y): 4481430
 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

<p>B. Distance from Shore (If Applicable) _____ ft.</p>	<p>C. Depth Below Surface (If Applicable) _____ ft.</p>	<p>D. Average Daily Flow Rate <u>0.037</u> mgd</p>
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E. Does this outfall have either an intermittent or periodic discharge?
 Yes No If Yes, Provide the following information:

Number of Days Per Year Discharge Occurs: _____	Average Duration of Each Discharge: _____	Average Flow Per Discharge: _____ mgd	Months in Which Discharge Occurs: _____
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Is Outfall Equipped with a Diffuser? Yes No

20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water
Unnamed tributary to North Blackbird Creek

B. Name of Watershed (If Known) _____	U.S. Soil Conservation Service 14-Digit Watershed Code (If Known) _____
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B. Name of State Management/River Basin (If Known) _____	U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) _____
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<p>B. Critical Flow of Receiving Stream (If Applicable) Acute _____ cfs Chronic _____ cfs</p>	<p>B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO₃ _____</p>
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MO 780-1805 (09-08)

FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 003
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PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply
 Primary Secondary Advanced Other (Describe) Overland flow

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)
 Design BOD₅ Removal Or Design CBOD₅ Removal 65 % Design SS Removal 65 %
 Design P Removal ____ % Design N Removal ____ % Other ____ %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:
 None

If disinfection is by chlorination, is dechlorination used for this outfall? Yes No

Does the treatment plant have post aeration? Yes No

20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.

OUTFALL NUMBER 003

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	5.65	S.U.		S.U.	53
pH (Maximum)	10.42	S.U.		S.U.	53
FLOW RATE	0.282	MGD	0.108	MGD	Continuous
TEMPERATURE (Winter)	14.9	°C	6.2	°C	17
TEMPERATURE (Summer)	26.7	°C	17.8	°C	25

*For pH report a minimum and a maximum daily value.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		
Conventional and Nonconventional Compounds							
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD ₅		mg/L		mg/L		
	CBOD ₅	35	mg/L	12	mg/L	53	5210B 45
FECAL COLIFORM		#/100 mL		#/100 mL			NA
TOTAL SUSPENDED SOLIDS (TSS)	56	mg/L	16	mg/L	53	USGS 1-3765-85	70
AMMONIA (AS N)	19.4	mg/L	5.2	mg/L	53	4500B	NA
CHLORINE (TOTAL RESIDUAL, TRC)		mg/L		mg/L			
DISSOLVED OXYGEN		mg/L		mg/L			
TOTAL KJELDAHL NITROGEN (TKN)		mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN		mg/L		mg/L			
OIL AND GREASE	9.13	mg/L	5.16	mg/L	53	1664A	10
PHOSPHORUS (TOTAL)		mg/L		mg/L			
TOTAL DISSOLVE SOLIDS (TDS)		mg/L		mg/L			
OTHER		mg/L		mg/L			

END OF PART B

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL			
FACILITY NAME Unionville North WWTF		PERMIT NO. MO- 0054569	OUTFALL NO. 004
PART B – ADDITIONAL APPLICATION INFORMATION			
20. INFLOW AND INFILTRATION			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. Gallons Per Day			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.			
20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)			
A. List the outfall number that is covered by this implementation schedule Outfall No.		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input type="checkbox"/> No <input type="checkbox"/>	
20.3 WASTEWATER DISCHARGES: COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
20.4 DESCRIPTION OF OUTFALL			
OUTFALL NUMBER			
A. LOCATION ¼ NW ¼ NW ¼ SW Section <u>36</u> Township <u>66N</u> Range <u>19</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W UTM Coordinates Easting (X): <u>500568</u> Northing (Y): <u>4481694</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) _____ ft.		C. Depth Below Surface (If Applicable) _____ ft.	D. Average Daily Flow Rate <u>0.037</u> mgd
E. Does this outfall have either an intermittent or periodic discharge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Provide the following information:			
Number of Days Per Year Discharge Occurs: Emergency only	Average Duration of Each Discharge:	Average Flow Per Discharge: mgd	Months in Which Discharge Occurs:
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
20.5 DESCRIPTION OF RECEIVING WATER			
B. Name of Receiving Water Unnamed tributary to North Blackbird Creek			
B. Name of Watershed (If Known)		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known)		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known)	
B. Critical Flow of Receiving Stream (If Applicable) Acute _____ cfs Chronic _____ cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO ₃	

MO 780-1805 (09-08)

FACILITY NAME Unionville North WWTF	PERMIT NO. MO- 0054569	OUTFALL NO. 004
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PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply
 Primary Secondary Advanced Other (Describe)

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)
 Design BOD₅ Removal Or Design CBOD₅ Removal 65 % Design SS Removal 65 %
 Design P Removal _____ % Design N Removal _____ % Other _____ %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:
 None

If disinfection is by chlorination, is dechlorination used for this outfall? Yes No

Does the treatment plant have post aeration? Yes No

20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.

OUTFALL NUMBER 004 - NO DISCHARGES 7/2007 TO PRESENT

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)		S.U.		S.U.	
pH (Maximum)		S.U.		S.U.	
FLOW RATE		MGD		MGD	
TEMPERATURE (Winter)		°C		°C	
TEMPERATURE (Summer)		°C		°C	

*For pH report a minimum and a maximum daily value.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		

Conventional and Nonconventional Compounds							
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD ₅		mg/L		mg/L		
	CBOD ₅		mg/L		mg/L		
FECAL COLIFORM			#/100 mL		#/100 mL		
TOTAL SUSPENDED SOLIDS (TSS)			mg/L		mg/L		
AMMONIA (AS N)			mg/L		mg/L		
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L		
DISSOLVED OXYGEN			mg/L		mg/L		
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L		
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L		
OIL AND GREASE			mg/L		mg/L		
PHOSPHORUS (TOTAL)			mg/L		mg/L		
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L		
OTHER			mg/L		mg/L		

END OF PART B

PART C - CERTIFICATION

30. CERTIFICATION

All applicants must complete the Certification Section. This certification must be signed by an officer of the company or city official. All applicants must complete all applicable sections as explained in the Application Overview. By signing this certification statement, applicants confirm that they have reviewed the entire form and have completed all sections that apply to the facility for which this application is submitted.

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PRINTED NAME AND OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)

Dawn Anne Fairley, Mayor

SIGNATURE

Dawn A Fairley, Mayor

TELEPHONE NUMBER WITH AREA CODE

660-947-2437

DATE SIGNED

1/13/12

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

For Design Flows Less than 1 Million Gallons Per Day,
Send Completed Form to:

Appropriate Regional Office

Map of regional offices with addresses and phone numbers is available on the Web at www.dnr.mo.gov/regions/ro-map.pdf.

For Design Flows of 1 Million Gallons Per Day or Greater,
Send Completed Form to:

Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102

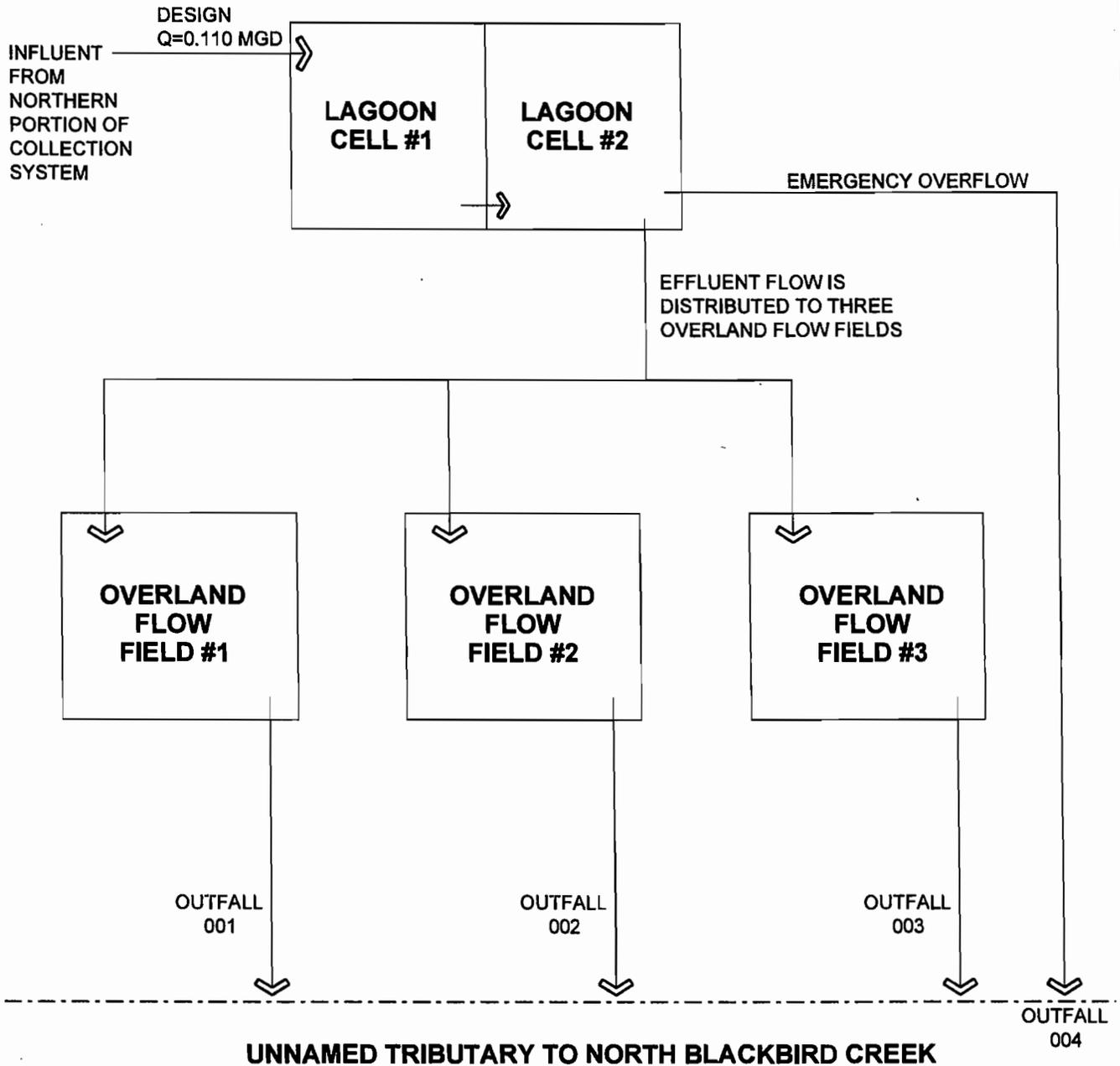
END OF PART C.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.

Do not complete the remainder of this application, unless:

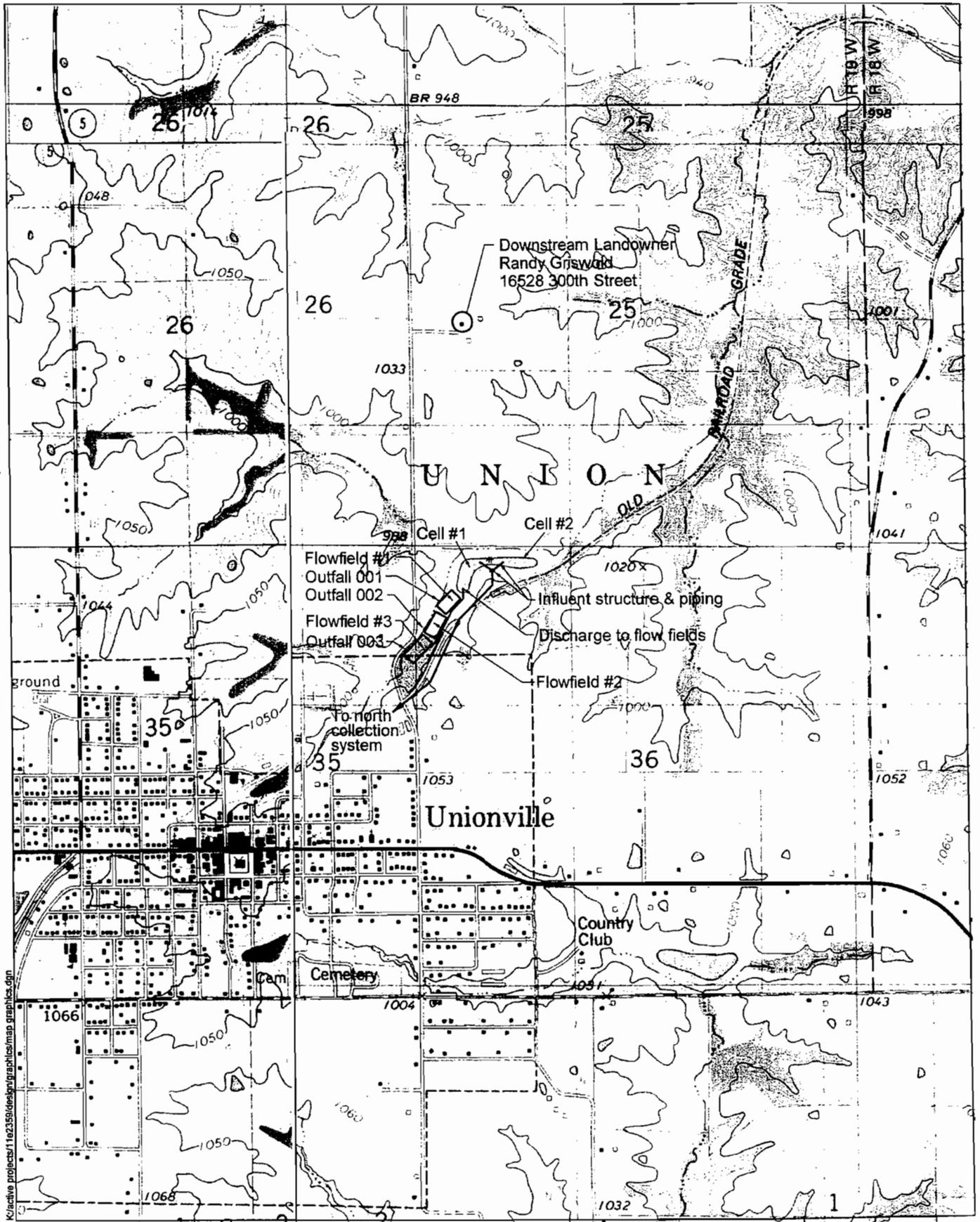
1. Your facility design flow is equal to or greater than 1,000,000 gallons per day.
2. Your facility is a pretreatment treatment works.
3. Your facility is a combined sewer system.

Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.



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At the Unionville North Wastewater Treatment Facilities, influent is received at the two-cell lagoon. After treatment and under normal conditions, effluent flow is distributed to three overland flow fields before discharge to an unnamed tributary to North Blackbird Creek (outfalls 001, 002 and 003). During extreme weather or in the event that the overland flow field cannot be utilized, discharge may occur via the emergency overflow from Cell #2 to the receiving stream (outfall 004)



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UNIONVILLE NORTH WASTEWATER TREATMENT FACILITIES MO-0054569
TOPOGRAPHIC MAP

1"=1500'



**UNIONVILLE NORTH WWTF
MO-0054569
ADDITIONAL INFORMATION**

7.7 – EXPLANATION OF BYPASSING IN COLLECTION SYSTEM

The City of Unionville has a history of sanitary sewer overflows from different locations in its collection system. The City began an intensive study of its collection system in 2007 and has progressively been working toward identifying and removing the major sources of infiltration and inflow in order to eliminate the overflows and reduce the influent flow to the treatment facilities. All overflows are reported immediately to the Department. In 2011, there were no overflows reported.

7.14 – PERMIT VIOLATIONS IN THE LAST FIVE YEARS

The City of Unionville has experienced significant staffing turnover within this permit cycle. The City received several Letters of Warning in regards to unreported test parameters and limit exceedances as the new staff became acquainted with facility operations and reporting requirements. The staff is also faced with exceptionally high flows to the treatment facilities as several extremely wet years have contributed substantially to the inflow and infiltration in the collection system. The City is currently under an approved compliance working schedule with the Department to address the inflow and infiltration as well as the treatment capacity and the City’s WWTFs.

Effluent Exceedances				
<i>Outfall Number</i>	<i>Date</i>	<i>Parameter</i>	<i>Limit</i>	<i>Value Reported</i>
001	June 2009	pH, maximum	9 SU	9.16 SU
001	July 2009	pH, maximum	9 SU	9.28 SU
001	November 2010	pH, maximum	9 SU	9.76 SU
002	October 2007	CBOD, Monthly Average	45 mg/L	53 mg/L
003	April 2009	pH, maximum	9 SU	10.42 SU
003	June 2009	pH, maximum	9 SU	9.06 SU
003	July 2009	pH, maximum	9 SU	9.08 SU
003	September 2009	pH, minimum	6 SU	5.65 SU
003	November 2010	pH, maximum	9 SU	10.35 SU

20. – INFLOW AND INFILTRATION

Special Condition 9 on the City of Unionville’s NPDES permits requires the City to work to identify and reduce sources of inflow and infiltration to its sanitary sewer collection system. The City completes and submits an Annual Interim Report to the Department in December of each year. The City has completed significant study efforts to locate and characterize the extent of the inflow and infiltration problems. The City has also addressed some of the encountered problems with available local funds. The City has engaged the service of Benton and Associates, Inc., to prepare a Preliminary Engineering Report in pursuit of funding and improvements to the treatment facilities.

**UNIONVILLE NORTH WWTF
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ADDITIONAL INFORMATION**

20.2 – SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION

The Sewer System Scope of Work, approved in 2007, provided a timeline which assigned progress based on the perceived priorities of the sanitary collection system in terms of inflow and infiltration contribution. The general timeline of events laid out in the Scope of Work is outline in Table 1. Progress to date is also noted in the table. (See next page).

Work Item	Date Proposed for Completion	Progress to Date
1. Initiate flow monitoring at lagoons	February 2007	Complete
2. Initiate Priority 1 items	July 2007	Complete
3. Submit annual interim report to MDNR	December 2007	Complete
4. Initiate Priority 2 items	April 2008	Complete
5. Complete Priority 1 items	May 2008	Complete
6. Complete Priority 2 items	December 2008	Complete
7. Submit annual interim report to MDNR	December 2008	Complete
8. Initiate Priority 3 items	April 2009	Complete
9. Complete Priority 3 items	December 2009	Complete
10. Submit annual interim report to MDNR	December 2009	Complete
11. Initiate Priority 4 items	April 2010	Complete
12. Complete Priority 4 items	December 2010	Complete
13. Submit annual interim report to MDNR	December 2010	Complete
14. Complete rehabilitation with available local funds	September 2011	In Progress
15. Complete plans for further rehabilitation needed	December 2011	In Progress
16. Submit annual interim report to MDNR	December 2011	Pending
17. Obtain funding for further rehabilitation needed	November 2012	
18. Submit final engineering report to MDNR	December 2012	
19. Complete additional sewer rehabilitation	December 2013	
20. Review treatment plant load handling	December 2013	
21. Complete plans for treatment plant improvements	December 2014	
22. Secure funding for treatment plant improvements	August 2015	
23. Complete treatment plant improvements	December 2016	

UNIONVILLE NORTH WWTF
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ADDITIONAL INFORMATION

To incorporate the preparation of the PER into the schedule and realign with the City's current status, the City has proposed in the most recent annual interim report that the following schedule supersede the remaining portion of the schedule in the Sewer System Study Scope of Work (from Item 15 to the end). The proposed revised schedule's ending date will be one year later than the ending date in the approved timetable in order to provide time for needed intermediate steps and studies. The additional year is proposed to be incorporated in order that sufficient data can be collected after the collection system improvements to evaluate the loadings on the treatment facilities.

Work Item	Revised Date Proposed for Completion
15. Submit annual interim report to MDNR	December 31, 2011
16. Submit Preliminary Engineering Report to MDNR	July 31, 2012
17. Submit Preliminary Engineering Report to MWWRC	October 31, 2012
18. Secure funding for collection system improvements and initiate construction	July 31, 2013
19. Complete collection system improvements	July 31, 2014
20. Review treatment plant load handling	July 31, 2015
21. Secure funding for improvements at treatment facilities (as needed)	August 31, 2016
22. Complete treatment facility improvements	December 31, 2017